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This issue contains:

Pruning Workshops

The NSFGA Production Committee was planning to hold a pruning work shop on Friday, February 18th however this has been postponed due to snow load in the orchards. This workshop will be held as soon as possible once there is a snow melt and we can get near the trees. There will also be a pruning workshop for stone fruit and pears in April. I will keep you posted.

The Evolution of Planting Systems in Nova Scotia over the Past Thirty Years

One of the first articles I wrote for the Orchard Outlook was about the modified central leader training system. For those of you who cannot remember, this appeared in the April 11, 1979 issue of the Orchard Outlook. At that point in my career I had only been the NSDA Tree Fruit Specialist for 10 days. I must confess that I knew very little about pruning and training systems which I kind of suspect growers knew this after reading my article. When told that I needed to write an article for the Orchard Outlook I dug into the texts, trade journals and the files left by Charlie Embree. Resulting from the review of material in the office; I wrote the article that I felt was appropriate for the NS Tree Fruit Industry. In hind sight I should have written about central leader pruning. I do not know if growers obtained any valuable information from this article but it was the start of a steep learning curve for me. Over the years I have seen many planting systems throughout North America and Europe and listened to lengthy debates, (at times heated), on the pros and cons of particular systems. I have seen some pretty simple systems and very complicated systems such as six row bed systems in Holland, the Ebro and Lincon Canopy training system in New York.

The first training system (outside of the article) that I was exposed to was the 155 system which is a central leader training system. This is a free standing tree with a tree density of 155 trees per acre. The concept was to develop four permanent scaffold limbs starting 18 -20 inches above the soil line with limb renewal used to control the fruiting canopy above the four scaffold limbs. This was a modification of the central leader training system which developed two to three sets of permanent scaffold limbs within the tree canopy. The 155 training system was developed by Dr Crowe and an economic study produced by AAFC indicated that this was the most profitable system for Nova Scotia under the mark conditions in the late 70's and early 80's. The most commonly used rootstocks for this system were semi-standard such as BA, Al2 and MM111 and more time was spent on developing a tree structure to support future crops then obtaining early

yields. The one concept of this training system that has carried over into present day planting is that of scaffold or limb renewal.

The use of planting systems that required tree support was limited to only a few Nova Scotia growers in the 80's and it was not until the 90's that there was greater adoption of dwarf rootstocks and support systems. The Northern Spy planting assistance program which began in 1994 accelerated the use of these systems. A producer had to plant a minimum of 300 trees per acre in order to qualify for assistance. At this time a tree density of 300-600 trees per acre was considered to be high density. Central leader training with 4 permanent scaffold limbs and limb renewal was still being recommended for these planting. The support system used was individual post which was the standard system being used in central and eastern USA. In terms of establishment cost the individual post was more economical for the producers then a trellis system. Over time many producers came to curse the individual post for the following reasons: annual re-pounding of the post down on heavy clay soil each spring, most post's only supported 6-7 feet of tree height restricting the bearing area and post breakage resulted in tree losses. Some of the common errors made with these early plantings were: 1)incorrect tree spacing with too much space being provide instead of too little thus yields per acre never reached their full potential. 2) Failure to develop a good tree structure in the early years with the most common error being failure to develop 4 plus good limbs in the first or second year of growth. The two to three limbs that were allowed to grow were difficult to manage and often restrict the growth of the central leader. 3) Restricted tree height because of the support system resulting in lost yield. The leader often broke or bent over once it was above 6-7 feet.

In the mid 1990 a few growers began to get a bit more adventurous resulting from trips to the IFTA winter meetings. Following one of these meetings in Washington State three producers planted a significant acreage using the Tatura V Trellis system. These were not the first commercial plantings using the Tatura V Trellis as Doug Nichols set out a three acre planting with four training systems, 155 system, free standing 415t/ac, Vertical Axe 580 t/ac and Tatura V Trellis 544 t/ac in 1985. Over the 10 years that yield records were kept the accumulated yield was similar for the Vertical Axe and Tatura V Trellis. The use of the Tatura V Trellis did not go much beyond these planting because of the cost and the difficulty of maintaining the system.
Following the Spy planting program in 2001 growers continued to set out new orchard with the bulk of new plantings being on dwarfing rootstocks and tree densities gradually increasing. About this time growers were beginning to realize the tree vigour problems with Honeycrisp and the advantage of increasing densities with regards to yield for this cultivar. With increasing tree densities and dissatisfaction with individual posts growers began to make more use of trellis systems in which galvanized conduit along with a one wire was used to support the tree. At this point most growers were not fully following the concept of the Vertical Axe as most still develop one set of permanent scaffolds in the bottom portion of the tree and used limb renewal pruning to maintain the fruit canopy above these scaffold limbs. Maintain proper vigour was still one of the major challenges with the lower scaffold limbs often becoming too strong and upright causing shading and crowding problems.

The introduction of the Honeycrisp Orchard Renewal Program resulted in a major jump to higher tree densities in the Nova Scotia tree fruit industry. The industry went from an average density of 300 to 400 trees per acre in the mid to late 90's to an average of 673 trees per acre for the 2011

HCORP plantings. The majority of planting under this program have used the Verticle Axe system with slight modification such as using two wires to support the conduit or the use of several wires to support the tree. The increase of tree densities towards 1000 tree per acre and beyond by some producers is resulting in growers having to change their thinking on tree training. The emphasis has switched from developing a good tree structures in the early years to early cropping and renewing the bearing surface. Production systems will continue to evolve towards systems that lend themselves toward labour efficiency and mechanization. While Nova Scotia growers may not be the developer of these newer systems they will seek them out and use them if they are practical and have the potential to keep the industry sustainable.

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